



Datasets

A brief overview

Art + Artificial Intelligence 2024

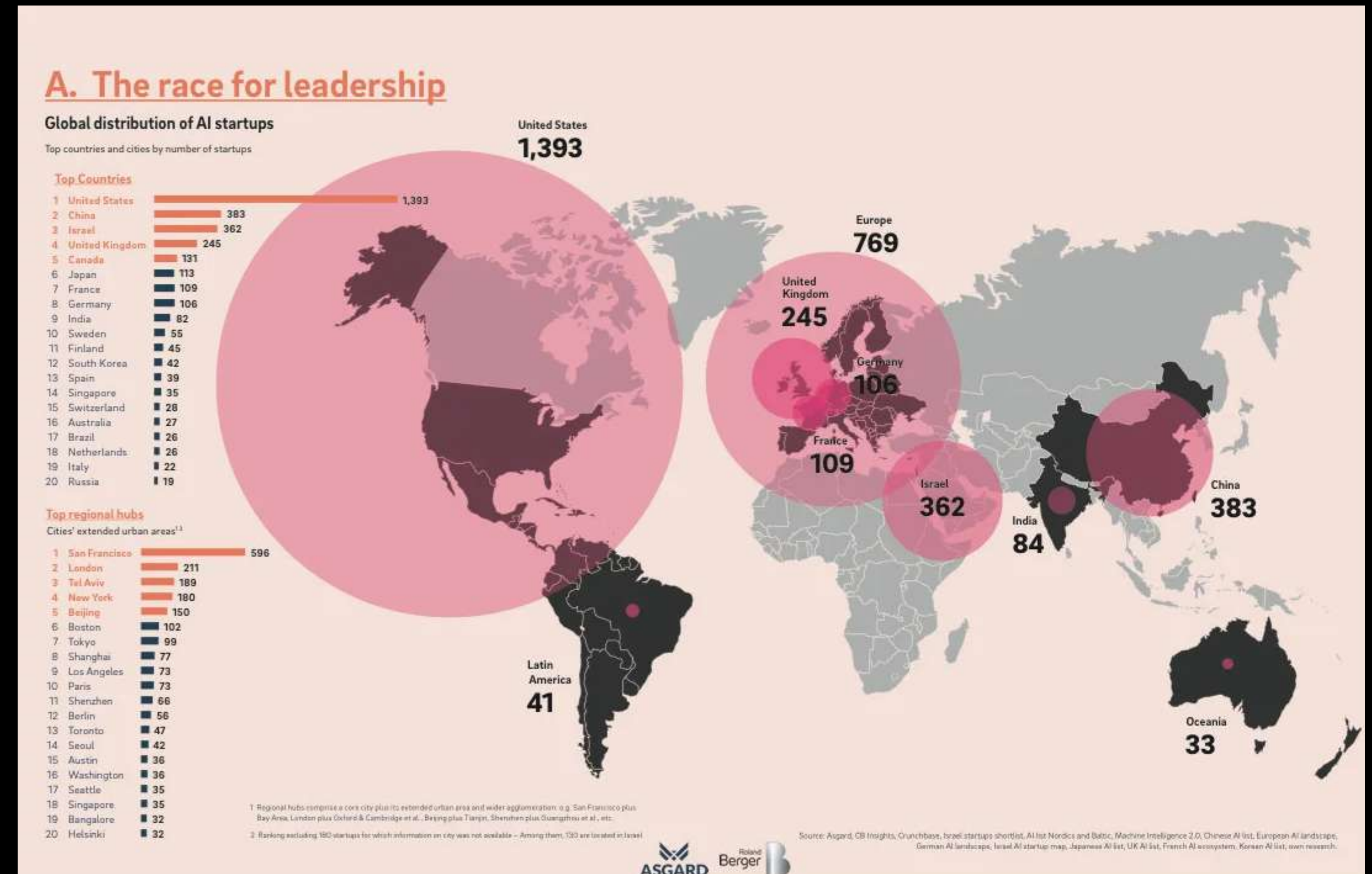
Data, data, data

- capture complex and non-linear decisions
- generalize better and reduce overfitting
- enable a more comprehensive exploration of the features

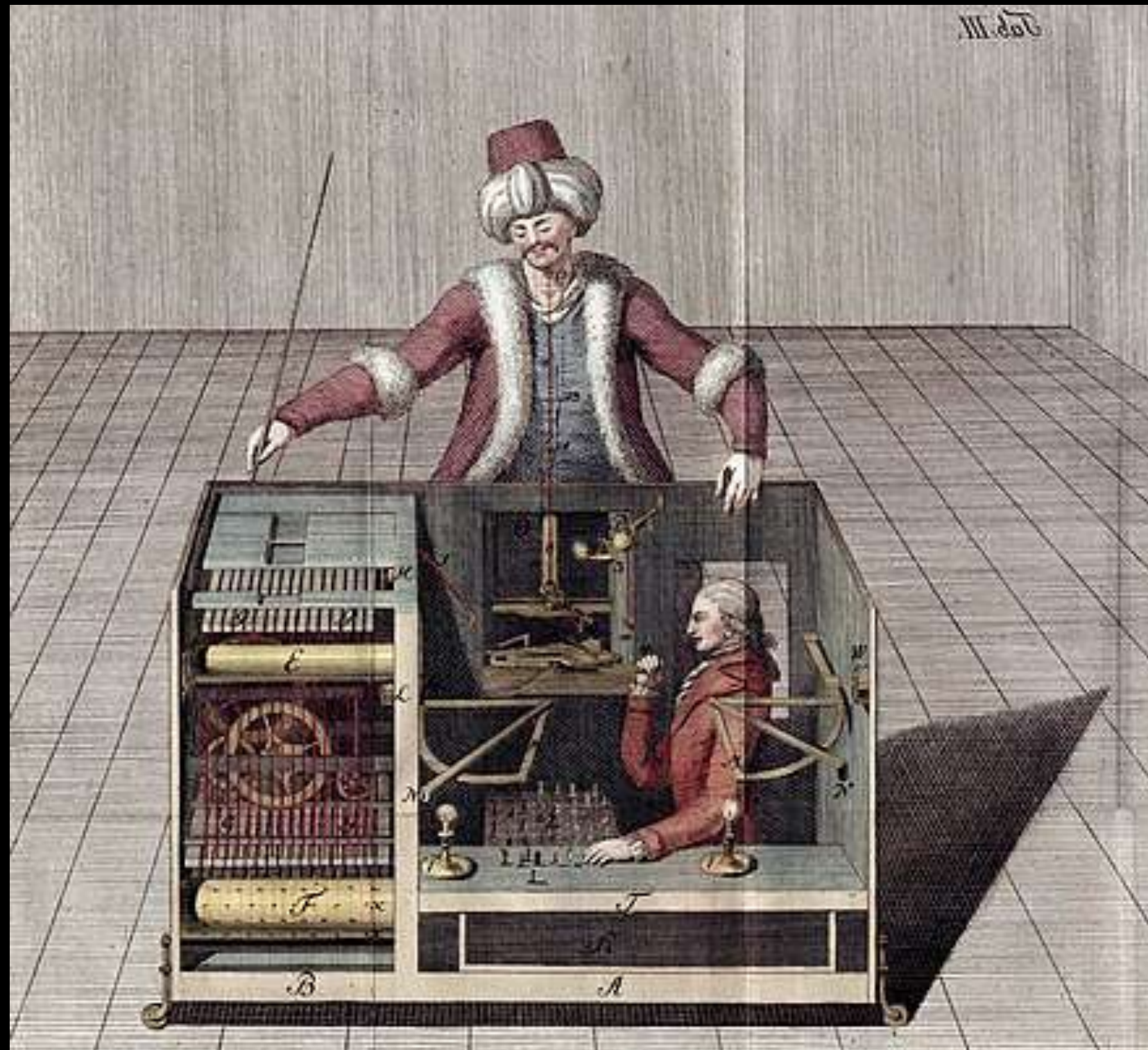


Data ownership

- Data advantage
- Computational power advantage
- Geopolitical advantage



Data ownership



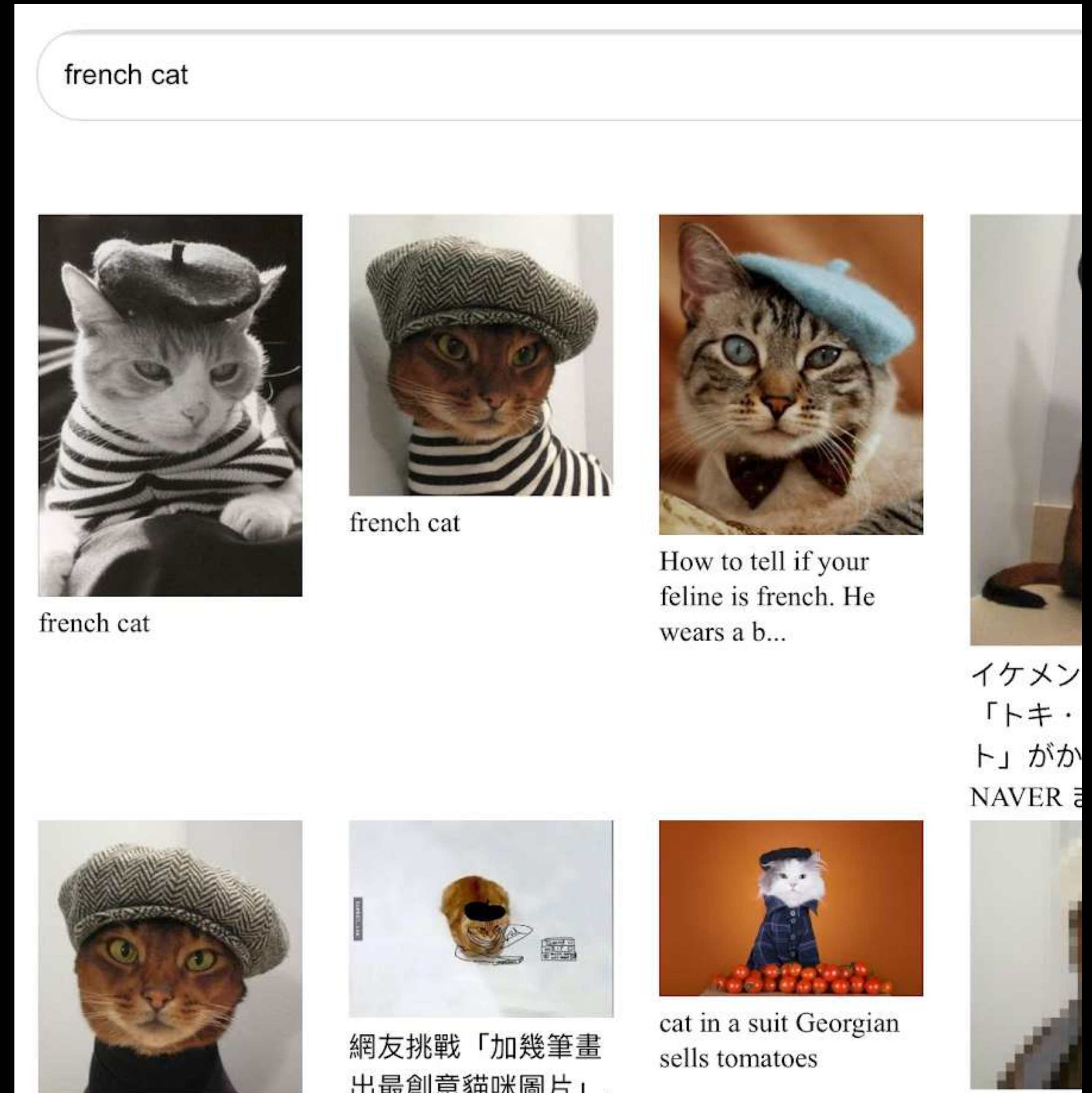
The Mechanical Turk

amazon
mechanical turk

Amazon Mechanical Turk

Open Datasets

- Common Objects in Context
- OpenImages
- Kaggle
- CelebA
- LAION

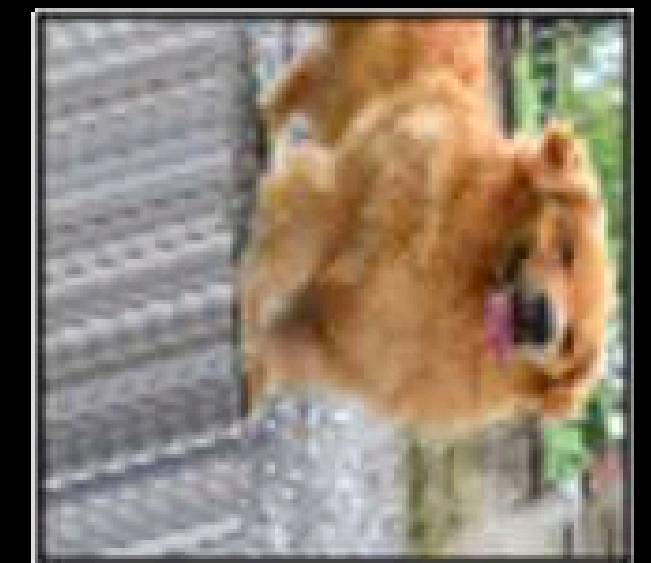
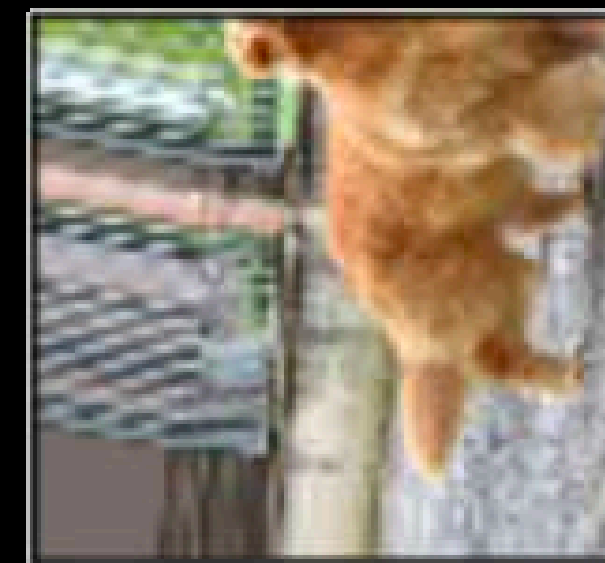
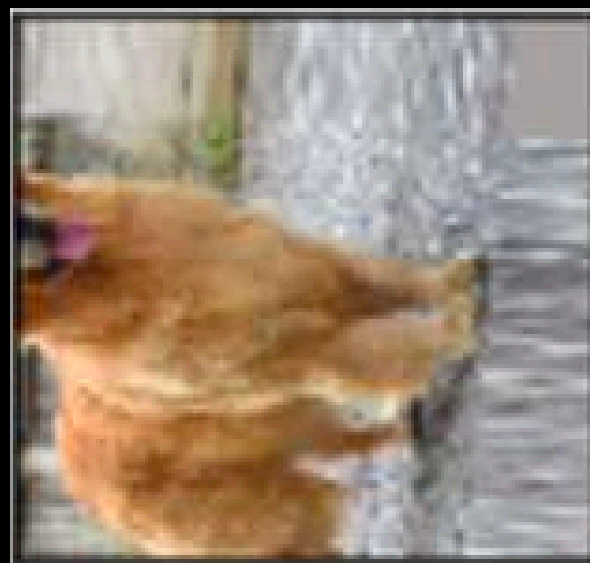
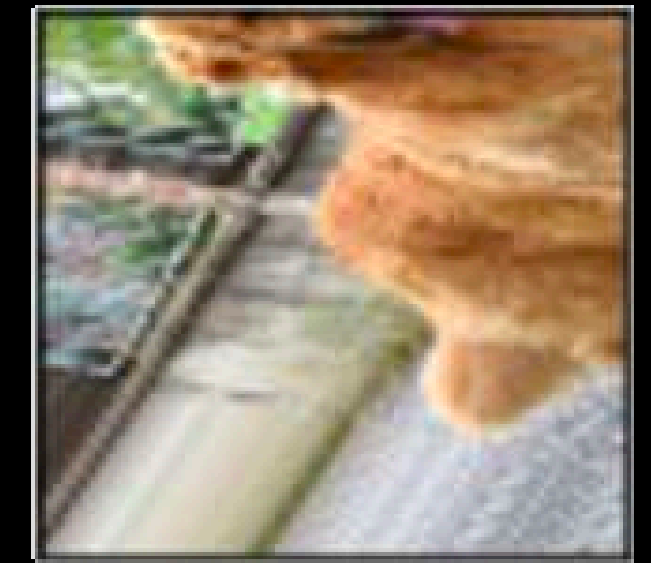
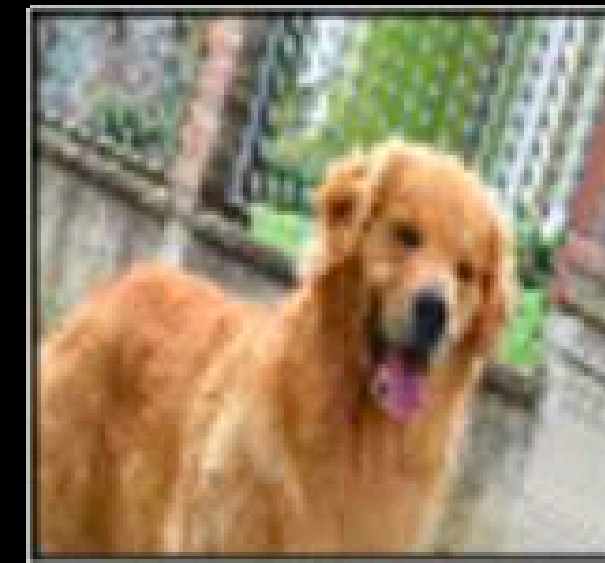
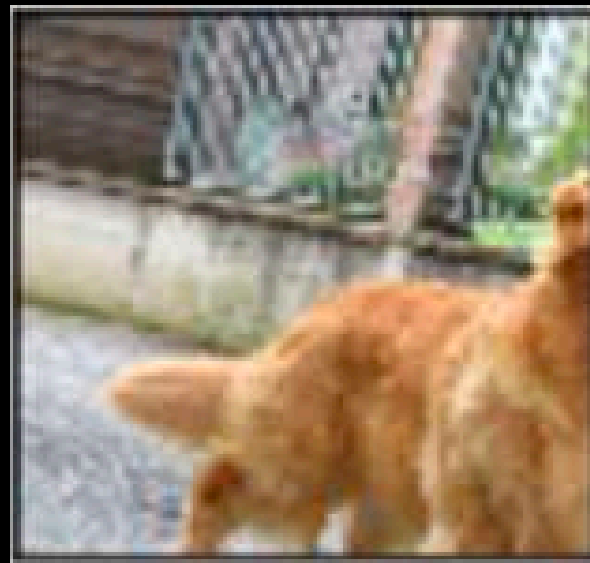
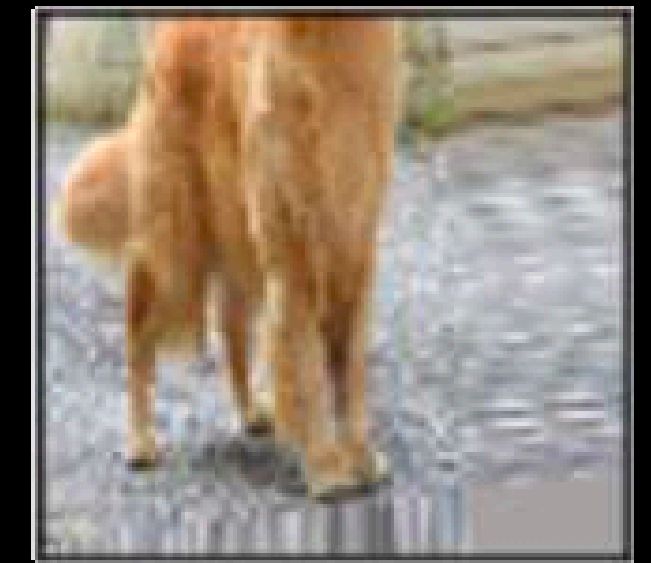
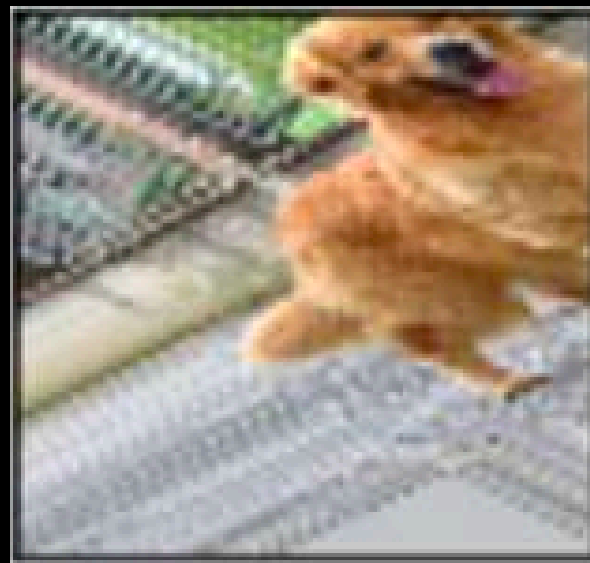


Synthetic Data

- Mimic real-world patterns
- Reduce the costs of data collection
- Address issues related to data privacy
- Reduce biases compared to real world data



Data Augmentation



Bias

Data bias in machine learning is a type of error where certain elements of a dataset are weighted and/or represented more heavily than others. A biased dataset does not accurately represent the use case of a model, leading to skewed results, low accuracy, and analytical errors.

[Aequitas](#)↗

[Fairness Glossar](#)↗

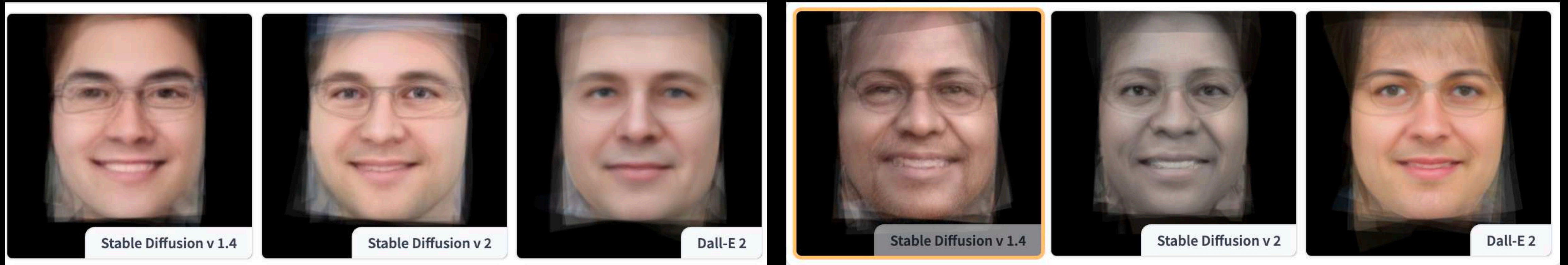
[Antrophic](#)↗

Bias

“Beyond the appropriation of individual identities, image generators have been shown to appropriate and distort identities of groups, encode biases, and reinforce stereotypes.”

Bias

Average faces based on profession (Stable Diffusion 1.5 and Dall-E 2)




Aerospace Engineer



Social Worker

Bias

LLM Paper shows that the dialect of the language one speaks determines what artificial intelligence (AI) says about character, employability, and crime.




Valentin Hofmann
@vjhofmann · [Follow](#)

 New paper 

We discover a form of covert racism in LLMs that is triggered by dialect features alone, with massive harms for affected groups.

For example, GPT-4 is more likely to suggest that defendants be sentenced to death when they speak African American English.




Implicit prejudice predicts AI decisions about people's character, employability, and criminality

Hofmann^{1-3*†}, Pratyusha Ria Kalluri⁴, Dan Jurafsky⁴, Sharese

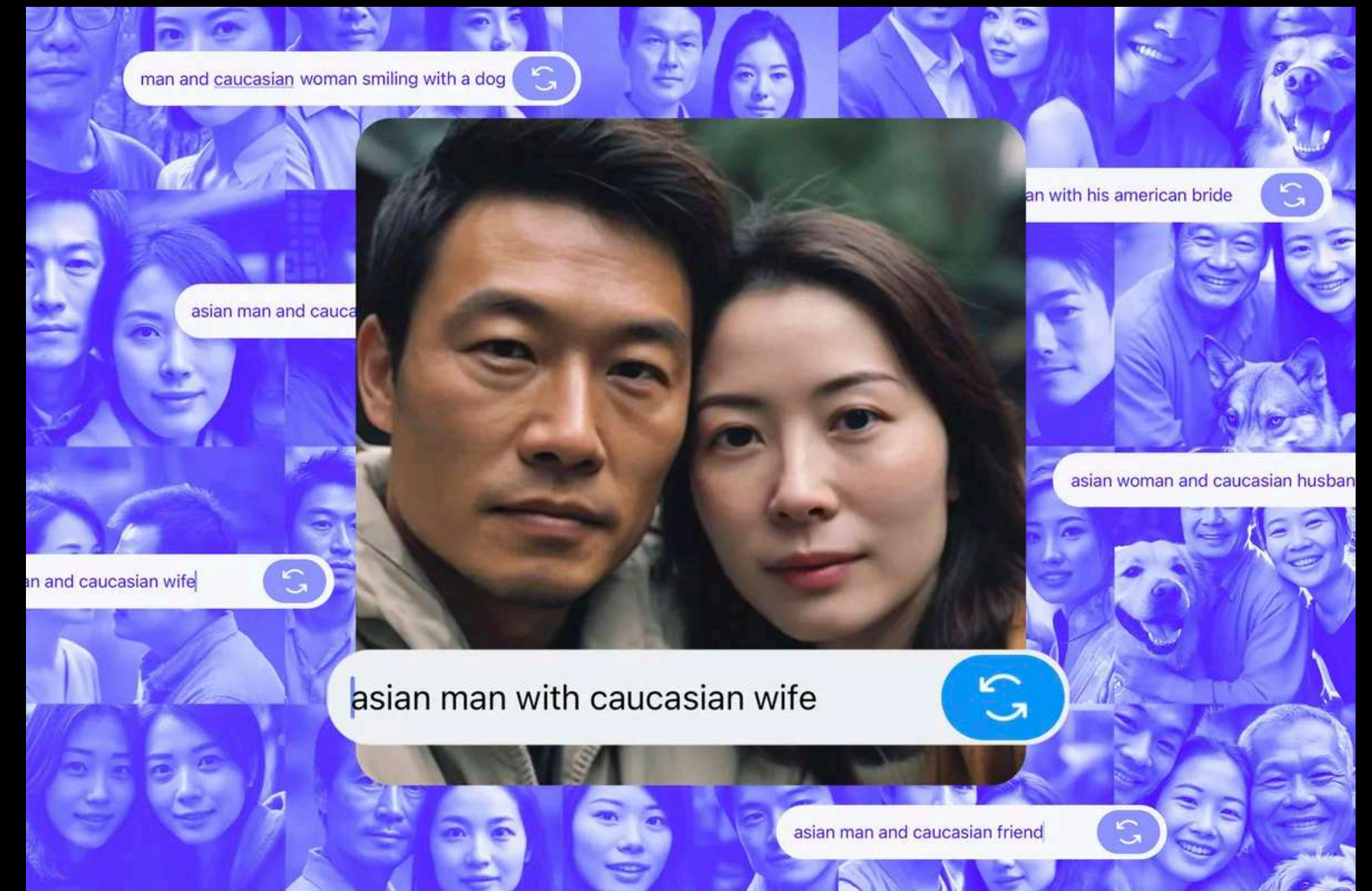
¹Allen Institute for AI ²University of Oxford ³LMU Munich
⁴Stanford University ⁵The University of Chicago

5:20 PM · Mar 4, 2024



Bias

Meta's AI image generator cannot generate images ethnically mixed couples. Additionally, people of certain ethnicities are depicted as coming from the same region; for example, Asians are often shown as primarily from Southeast Asia.



Bias

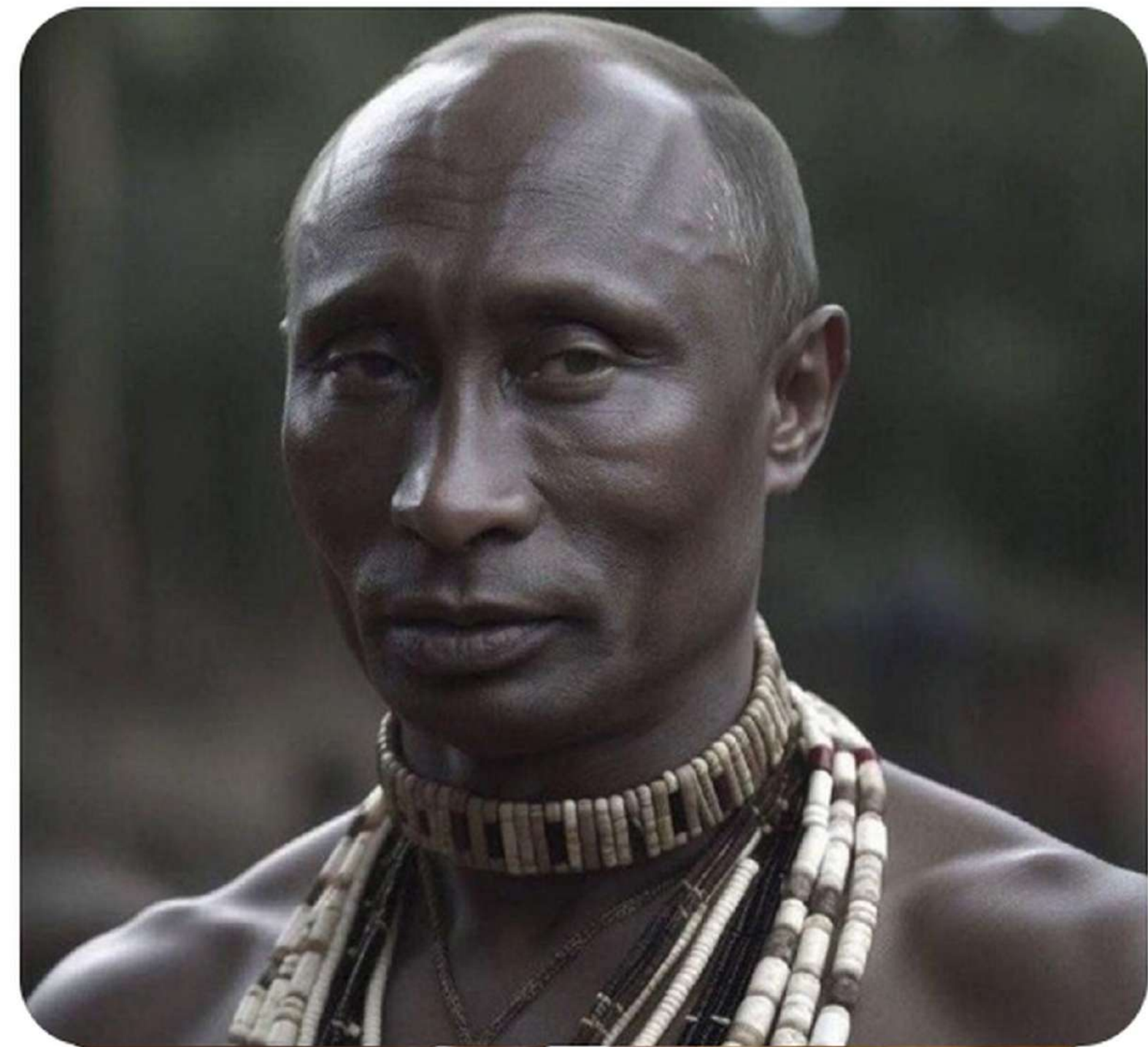
When prompting Google Gemini to generate images of, for example, German soldiers from 1943, the results are surprisingly inaccurate: hardly any of the depicted individuals are white.



Generate a picture of Putin



Sure



Artificial intelligence (AI): The qualification of AI creations as “works” under EU copyright law

"Since AI-generated products are created without human intervention, they do not meet the requirements to be considered a 'work.' The current legal framework is unsuitable for the copyright protection of AI-generated products."



Copyrights

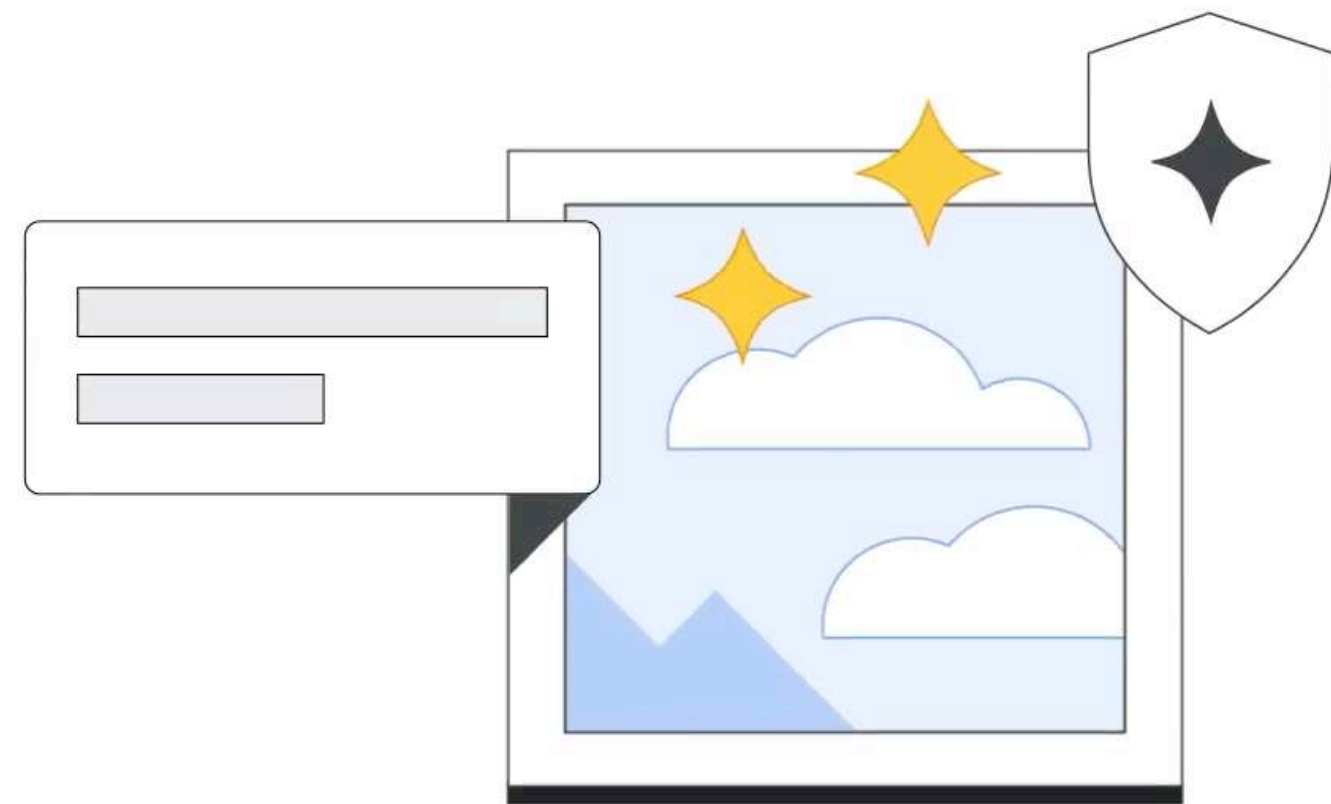
Did you seek consent from living artists or work still under copyright?

No. There isn't really a way to get a hundred million images and know where they're coming from. It would be cool if images had metadata embedded in them about the copyright owner or something. But that's not a thing; there's not a registry. There's no way to find a picture on the Internet, and then automatically trace it to an owner and then have any way of doing anything to authenticate it.

We've filed a lawsuit challenging Stable Diffusion, a 21st-century collage tool that violates the rights of artists.

Stable Diffusion made copying artists and generating porn harder and users are mad

AI Watermark



How does SynthID
watermark and **identify**
AI-generated content?



[Google Deepmind SynthID ↗](#)

[Leica Content Credentials ↗](#)

Have I been trained?
Pimeyes

Exercise

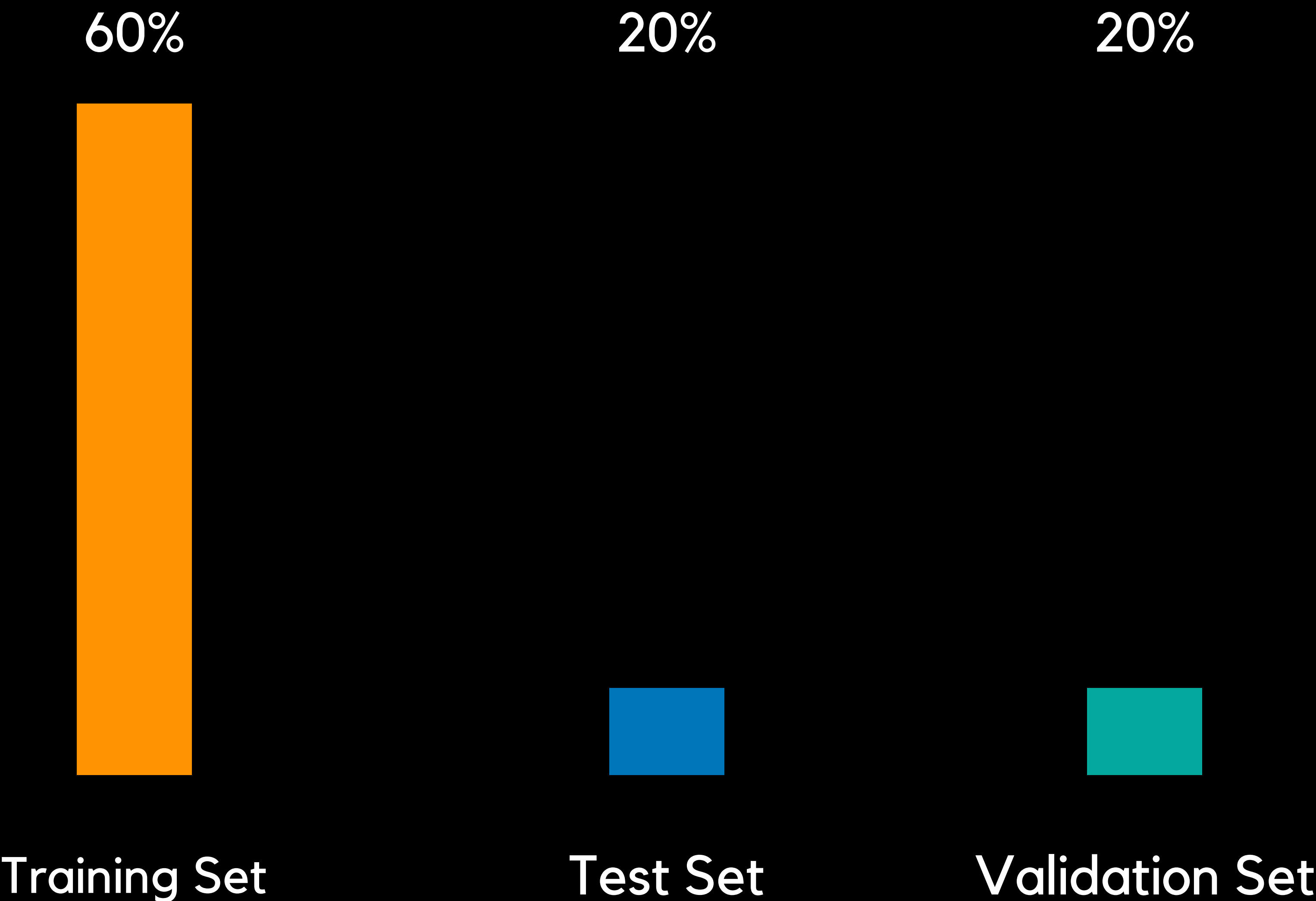
- Create your own dataset
- Collect 20 images per class (Start with 2)
- Train the dataset

Time: ~ 20min

The screenshot shows a web application interface for managing a dataset and training a model. At the top, there are four tabs: "Dataset" (active), "Train", "Demo model", and "Export". Below the tabs, there are four image thumbnails arranged in a 2x2 grid. The top-left thumbnail shows a white kitten with a label "Persian Cat" and a dropdown arrow. The top-right thumbnail shows two golden retriever puppies with a label "Golden Retriever" and a dropdown arrow. The bottom-left thumbnail shows a husky puppy with a label "Siberian Husky" and a dropdown arrow. The bottom-right thumbnail shows a black and white dog with a label "Add Tag" and a dropdown arrow. A large white play button icon is overlaid in the center of the grid. On the right side, there is a "Categories" panel with a "Distribution" bar chart and a table of category percentages.

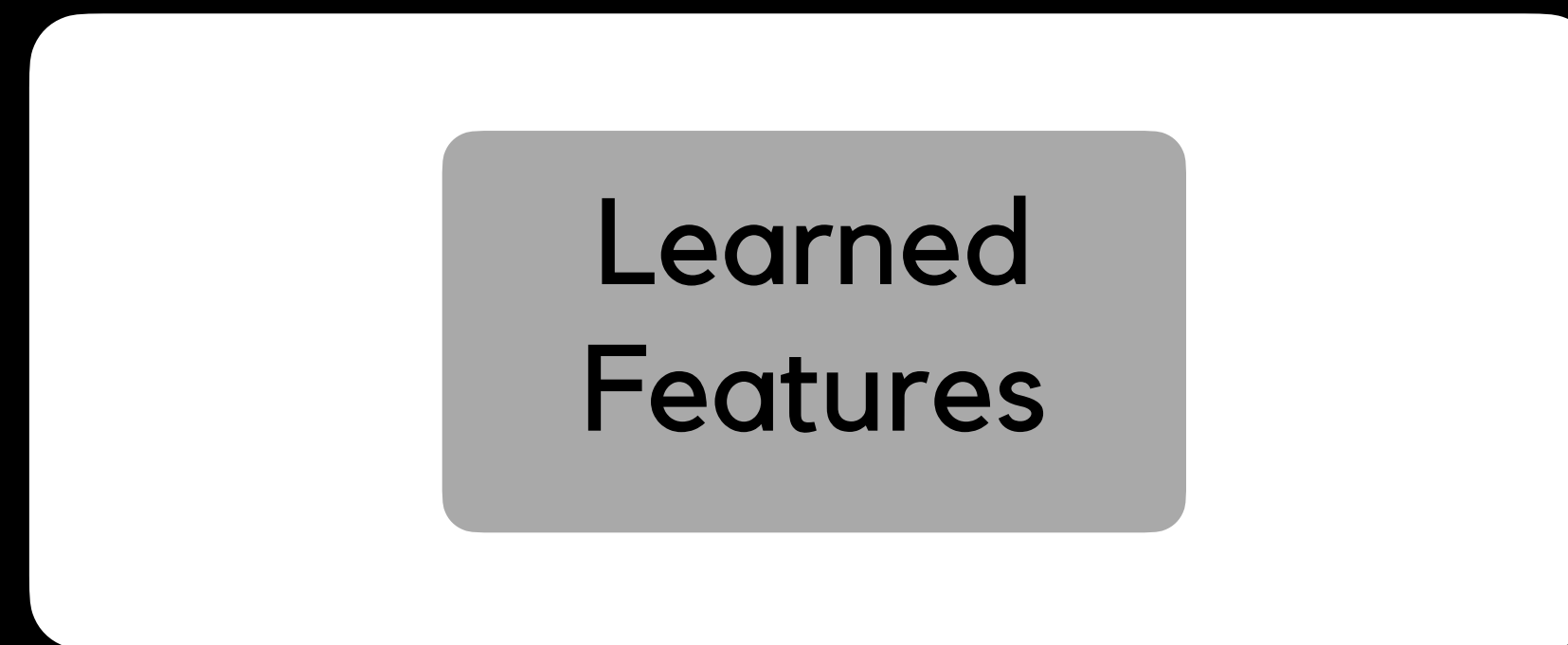
Categories	
Distribution	
Siberian Husky	38.2 %
Persian Cat	27.4 %
Bengal Cat	25.3 %
Golden Retriever	9.1 %

Custom Dataset



Transfer learning

Convolutional Neural Network (CNN)



Cat 99%



Pre-Trained
CNN



New Task



Dog 95%
Cat 5%

Data